

WHAT IS CLAIMED IS:

SW PA

1. A method of treating a pathology selected from the group consisting of autism, amyotrophic lateral sclerosis, multiple sclerosis, enuresis, Parkinson's disease, brain ischemia, stroke, cerebral palsy (CP) sleeping disorders, feeding disorders, and AIDS-associated dementias comprising the step of administering to an individual suffering from the pathology an amount of a micelle composition effective to ameliorate conditions associated with the pathology, said micelle composition prepared by a method of comprising the steps of:

- mixing one or more lipids wherein at least one lipid component is covalently bonded to a water-soluble polymer;
- forming sterically stabilized micelles from lipids;
- incubating micelles from step (b) with one or more biologically active amphipathic compound(s) under conditions in which said compound(s) becomes associated with said micelles in a more biologically active conformation, wherein at least one amphipathic compound is a member of the VIP/glucagon/secretin or IL-2 family of peptides including peptide fragments and analogs.

2. The method of claim 1, wherein preparing the micelle composition, mixing in step (a) is carried out in an organic solvent, and forming sterically stabilized micelles in step (b) is carried out in steps comprising (i) removing the organic solvent to leave a dry film, and (ii) hydrating the dry film with an aqueous solution.

3. The method of claim 2, wherein in preparing the micelle composition, the organic solvent in step (a) is removed by evaporation or lyophilization.

4. The method according to claim 1 wherein in preparing the micelle composition, mixing in step (a) is carried out in an aqueous solution.

5. A method of treating a pathology selected from the group consisting of autism, multiple sclerosis, enuresis, Parkinson's disease, amyotrophic lateral sclerosis, and AIDS-associated dementias, comprising the step of administering to an individual an amount of a micelle composition effective to ameliorate conditions associated with the pathology, said micelle composition prepared in a method comprising the steps of:

- a) mixing one or more lipids with one or more biologically active amphipathic compounds, wherein at least one lipid component is covalently bonded to a water-soluble polymer, and wherein at least one amphipathic compound is a member of the VIP/glucagon/secretin family of peptides including peptide fragments and analogs;
- b) forming sterically stabilized micelles from the mixture of step (a) under conditions in which said compound(s) becomes associated with said micelles in a more biologically active conformation.

6. The method of claim 5 wherein in preparing the micelle composition, mixing in step (a) is carried out in an organic solvent and at least one lipid is conjugated to one or more targeting compound(s), and forming micelles in step (b) is carried out in a process comprising the steps of: (i) removing the organic solvent to leave a dry film, and (ii) hydrating the dry film with an aqueous solution, said method further comprising step of: (c) incubating said micelle products under conditions wherein the targeting compound(s) associates with said micelle products in an active conformation.

7. A method of treating a pathology selected from the group consisting of autism, multiple sclerosis, enuresis, Parkinson's disease, amyotrophic lateral sclerosis, and AIDS-associated dementias comprising the step of administering to an individual suffering from the pathology an amount of a sterically stabilized crystalline composition effective to ameliorate conditions associated with the pathology, said sterically stabilized crystalline composition comprising one or more biologically active compounds which are insoluble in aqueous solution, said sterically stabilized crystalline compounds prepared by a method comprising the steps of:

- a) mixing the biologically active compound(s) with one or more lipids, wherein at least one of the lipids is conjugated to a water soluble polymer and at least one biologically active compound is a member of the VIP/glucagon/secretin or IL-2 family of peptides including peptide fragments and analogs; and
- b) forming sterically stabilized crystalline products.

8. The method of claim 7 where in preparing the sterically stabilized crystalline compound, mixing in step (a) is carried out in an organic solvent, and forming crystalline products in step (b) is carried out in a process comprising the steps of (i) removing the organic solvent to leave a dry film; and (ii) hydrating the dry film with an aqueous solution, said method further comprising the steps of (c) contacting said crystalline products with one or more targeting compounds; and (d) incubating said crystalline products under conditions wherein the targeting compound(s) associates with said crystalline products.

9. The method of claim 7 where in preparing the sterically stabilized crystalline compound, forming in step(b) is carried out in the steps comprising (i) removing the organic solvent to leave a dry film and (ii) hydrating the dry film with an aqueous solution.

10. The method of any one of claims 1, 5, or 7 wherein said water soluble polymer is polyethylene glycol (PEG).

11. The method of any one of claims 1, 5, or 7 wherein the micelles have an average diameter of less than about 25 nm.

12. The method of any one of claims 1, 5, or 7 wherein the combination of lipids consists of distearoyl-phosphatidylethanolamine covalently bonded to PEG (PEG-DSPE).

PCT/US2003/034626